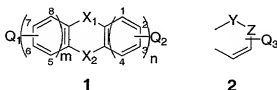


CLAIMS

1. An infrared dye wherein the dye comprises of a molecule 1



- 5 wherein m and n are the number of fused 6-membered aromatic rings connected to each side of the central moiety such that the first 6-membered aromatic ring, if present, is connected as shown in 1; and
- wherein Q_1 and Q_2 are one of the same or different fused rings shown as 2
- 7 whereby one ring shown as 2 is connected at any of the two adjoining positions C_1 to C_4
- 10 at any orientation and another ring shown as 2 is connected to any of the two adjoining positions C_5 to C_8 at any orientation of the outer aromatic rings shown in 1 which may also include one or many substituents individually selected from the group consisting of R_1 , a fused 5-membered ring or a 6-membered aromatic ring optionally substituted with 1 to 4 substituents individually selected from R_2 , and fused polyaromatic rings optionally
- 15 substituted with one or more substituents selected from R_3 wherein R_1 , R_2 and R_3 are individually selected from the group R; and
- wherein X_1 and X_2 are individually selected from the group consisting of CO, O, S, Se, Te, CR_4R_5 , NR_4 , SiR_4R_5 , GeR_4R_5 , PR_4 where R_4 and R_5 , which may be the same or different, are selected from the group R; and
- 20 wherein Y is individually selected from the group consisting of CO, O, S, Se, Te, CR_6R_7 , NR_6 , SiR_6R_7 , GeR_6R_7 , PR_6 and Z is selected from CR_8 or N where R_6 , R_7 and R_8 which may be the same or different, are selected from the group R; and
- wherein Z is individually selected from the group consisting of CO, O, S, Se, Te, CR_9R_{10} , NR_9 , SiR_9R_{10} , GeR_9R_{10} , PR_9 and Y is selected from CR_{11} or N where R_9 , R_{10}
- 25 and R_{11} which may be the same or different, are selected from the group R; and
- Q_3 and Q_4 may be 0, 1 or more than 1 substituents that are individually selected from the group consisting of R_{12} , a fused 5-membered ring or a 6-membered aromatic ring optionally substituted with 1 to 4 substituents individually selected from R_{13} , and

fused polyaromatic rings optionally substituted with one or more substituents selected from R_{14} wherein R_{12} , R_{13} and R_{14} are individually selected from the group R; and

- R is the group consisting of a hydrogen atom, a substituted or unsubstituted alkyl group, a substituted or unsubstituted aryl group, a substituted or unsubstituted aralkyl group, a halide atom, a hydroxy group, a substituted or unsubstituted amine group, a substituted or unsubstituted alkoxy group;
- 5

wherein the infrared dye absorbs strongly in the near infrared region of the spectrum but poorly in the visible region of the spectrum.

- 10 2. An infrared dye composition comprising a compound that can be described by molecule 1 according to claim 1.
3. A solvent-based ink composition comprising a compound that can be described by molecule 1 according to claim 1.
- 15 4. An infrared absorbing compound according to claim 1 wherein one or more polar group substituents such as $-\text{SO}_3\text{H}$, $-\text{NH}_2$ and $-\text{CN}$ are utilized.
5. A solvent-based ink according to claim 3 which is ink jet printer ink.

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